

Appl. No. : 10/643,846
Filed : August 19, 2003

AMENDMENTS TO THE CLAIMS

Please amend the Claims as follows. Insertions are shown underlined while deletions are ~~struck through~~. Please add Claims 14-21.

1 (currently amended): A device for gel-coating seeds comprising:

a plurality of nozzles into each of which a gelling agent is filled and a seed is charged and held in said gelling agent so as to form a gel-coated seed which is then allowed to fall;

a pair of upper and lower nozzle casings joined with each other through a joint surface, wherein said nozzles vertically penetrate said upper and lower nozzle casings; and wherein said joint surface is arranged higher than a gel-filled portion of each nozzle;

galleries for said gelling agent formed on said junction surface; and

passages formed in said lower nozzle casing so as to extend from said respective galleries to said respective gel-filled portions of said nozzles below said galleries.

2 (original): The device for gel-coating seeds as set forth in claim 1, wherein said lower nozzle casing comprises a bottom plate and nozzle sleeves mounted thereon, wherein each nozzle vertically penetrates said upper nozzle casing and each nozzle sleeve, and said galleries are formed between said upper nozzle casing and said nozzle sleeves.

3 (currently amended): The device for gel-coating seeds as set forth in claim 2, wherein each nozzle sleeve ~~comprising~~comprises inner and outer members assembled together.

4 (original): The device for gel-coating seeds as set forth in claim 3, wherein each passage is formed between said inner and outer members.

5 (original): The device for gel-coating seeds as set forth in claim 4, wherein said inner and outer members are disposed concentrically and co-axially with each nozzle.

6 (original): The device for gel-coating seeds as set forth in claim 2, wherein each gallery is a groove which is circularly formed around each nozzle sleeve.

7 (currently amended): The device for gel-coating seeds as set forth in claim 2, wherein each passage comprises ~~one or more pairs~~a plurality of channels arranged at constant intervals, and wherein each pair of channels is disposed opposite to each other with respect to an axis of each nozzle.

8 (original): The device for gel-coating seeds as set forth in claim 1, further comprising:

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a plurality of open/close portions for opening and closing the respective nozzles, formed in said upper nozzle casing, wherein each of said open/close portions is disposed at an intermediate or upper portion of each nozzle, and

a plurality of air chambers formed in said upper nozzle casing, wherein air can be charged under pressure from each air chamber into each nozzle, said air chamber being disposed between said open/close portion and said gel-filled portion, wherein, at the same time when air is charged into said nozzle, said open/close portion is closed.

9 (currently amended): The device for gel-coating seeds as set forth in claim 8, wherein each open/close portion comprises an open/close member reciprocally slidable across each nozzle wherein when opened, the open/close member constitutes a part of said nozzle;

10 (original): The device for gel-coating seeds as set forth in claim 9, wherein each air chamber comprises a piston interlocking with each reciprocally slidable open/close member so as to charge air under pressure into the nozzle when the open/close member is closed.

11 (original): The device for gel-coating seeds as set forth in claim 9, further comprising means for reciprocating all of said open/close members and said pistons.

12 (original): The device for gel-coating seeds as set forth in claim 2, wherein the nozzle sleeves are individually replaceable.

13 (original): The device for gel-coating seeds as set forth in claim 2, further comprising a vertical guide sleeve contacting the upper nozzle casing and the nozzle sleeve in each nozzle and constituting an inner surface of the nozzle.

14 (new): A device for gel-coating seeds, comprising:

a nozzle in which a gelling agent is filled and a seed is charged and held in said gelling agent so as to form a gel-coated seed which is then allowed to fall;

an upper nozzle casing;

a lower nozzle casing joined to said upper nozzle casing through a joint surface, said lower nozzle casing including (i) a bottom palate and (ii) a nozzle sleeve mounted on the bottom plate, said nozzle sleeve including inner and outer members assembled together, wherein said nozzle vertically penetrates said upper nozzle casing and said nozzle sleeve;

a gallery for said gelling agent formed between said upper nozzle casing and said nozzle sleeve; and

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a passage formed in said lower nozzle casing so as to extend from said gallery to said gel-filled portion of said nozzle.

15 (new): The device for gel-coating seeds as set forth in claim 14, wherein said passage is formed between said inner and outer members.

16 (new): The device for gel-coating seeds as set forth in claim 14, wherein said passage comprises a plurality of channels.

17 (new): The device for gel-coating seeds as set forth in claim 14, further comprising:

an open/close portion for opening and closing said nozzle, formed in said upper nozzle casing, wherein said open/close portion is disposed at an intermediate or upper portion of said nozzle, and

an air chamber formed in said upper nozzle casing, wherein air can be charged under pressure from said air chamber into each nozzle, said air chamber being disposed between said open/close portion and said gel-filled portion, wherein, at the same time when air is charged into said nozzle, said open/close portion is closed.

18 (new): The device for gel-coating seeds as set forth in claim 17, wherein said open/close portion comprises an open/close member reciprocally slidable across said nozzle wherein when opened, said open/close member constitutes a part of said nozzle.

19 (new): The device for gel-coating seeds as set forth in claim 18, wherein said air chamber comprises a piston interlocking with said reciprocally slidable open/close member so as to charge air under pressure into said nozzle when said open/close member is closed.

20 (new): The device for gel-coating seeds as set forth in claim 14, wherein said nozzle sleeve is replaceable from said bottom plate and said upper nozzle casing.

21 (new): The device for gel-coating seeds as set forth in claim 14, further comprising a vertical guide sleeve connecting said upper nozzle casing and said nozzle sleeve in said nozzle and constitute an inner surface of said nozzle.